

WHAT IS CLAIMED IS:

1. A bearing current reduction assembly comprising:

a rotor shaft;

an inner bearing cap substantially radially aligned with said rotor shaft,
said inner bearing cap comprising an inner end, said inner end in close proximity to
said rotor shaft; and

a charge concentrator disposed on at least one of said rotor shaft and
said inner end.

2. An assembly according to Claim 1 wherein said charge
concentrator includes an edge having a small radius to concentrate electrical charge
thereon.

3. An assembly according to Claim 1 wherein said inner end is
within approximately 0.005 inch from said rotor shaft.

4. An assembly according to Claim 1 wherein said inner bearing
cap comprises an aluminum alloy.

5. An assembly according to Claim 1 wherein said rotor shaft
comprises said charge concentrator.

6. An assembly according to Claim 1 wherein said inner end
comprises said charge concentrator.

7. An electric motor assembly comprising:

a motor housing;

a stator mounted in said housing and comprising a bore therethrough;

a rotor core rotatably mounted in said housing and extending through
said stator bore;

a rotor shaft extending through said rotor core;

at least one endshield;

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an inner bearing cap radially aligned with said rotor shaft, said inner bearing cap having an inner end and an outer end, said inner end in close proximity to said rotor shaft; and

5 a charge concentrator disposed on at least one of said rotor shaft and said inner end.

8. An electric motor assembly according to Claim 7 wherein said charge concentrator includes an edge having a small radius to concentrate electrical charge thereon.

10 9. An electric motor assembly according to Claim 7 wherein said inner end is within approximately 0.005 inch from said rotor shaft.

10. An electric motor assembly according to Claim 7 wherein said inner bearing cap comprises an aluminum alloy.

11. An electric motor assembly according to Claim 7 wherein said rotor shaft comprises said charge concentrator.

15 12. An electric motor assembly according to Claim 7 wherein said inner end comprises said charge concentrator.

13. A bearing assembly for a rotor shaft comprising:

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a bearing for supporting the shaft; and

20 an inner end cap separated from said bearing and configured to receive an electrical current from the rotor shaft.

14. A bearing assembly according to Claim 13 wherein the rotor shaft comprises at least one charge concentrator.

15. A bearing assembly according to Claim 13 wherein said inner cap comprises at least one charge concentrator.